

Amendments In The Claims

Claim 1 (~~canceled~~, allowed in the parent case, and shown here as a convenience to the Examiner);

1. A method of measuring a data signal to create an eye diagram of that signal, the method

2 comprising the steps of:

- (a) setting a hits count to zero;
- 4 (b) comparing the instantaneous voltage of a clock signal associated with the data signal to a clock threshold voltage to produce a logical clock signal;
- 6 (c) delaying the logical clock signal by a selected first amount to produce a delayed logical clock signal;
- 8 (d) comparing the instantaneous voltage of the data signal to be measured to a data threshold voltage to produce a logical data signal;
- 10 (e) delaying the logical data signal by a selected second amount to produce a delayed logical data signal;
- 12 (f) delaying the delayed logical clock signal by a selected third amount to produce a doubly delayed logical clock signal;
- 14 (g) capturing the value of the delayed logical data signal in response to the delayed logical clock signal;
- 16 (h) capturing the value of the delayed logical data signal in response to the doubly delayed logical clock signal;
- 18 (i) incrementing the hits count each time a value captured in step (g) is different to that captured in step (h);
- 20 (j) repeating steps (b) through (i) until a selected condition is satisfied;
- (k) subsequent to step (j), storing the count of step (i) in a data structure indexed by
- 22 the difference between the first and second amounts and by the data threshold voltage;
- 24 (l) repeating steps (a) through (k) with different combinations of the data threshold voltage and difference between the first and second amounts; and
- 26 (m) generating an eye diagram from the hits counts stored in the data structure.

Claim 2 (currently amended);

2. An eye diagram analyzer comprising:

2 a ~~variable~~ clock signal waveform delay circuit having an input for receiving a clock
signal and an output producing a delayed clock signal that is delayed by a selected first
4 amount and whose transitions in a selected direction serve as a time reference;

6 a threshold detector having a variable threshold, an input for receiving a data signal
to be measured as an eye diagram and having an output producing a logical data signal;

8 a variable data signal waveform delay circuit having an input coupled to receive the
logical data signal and an output producing a delayed logical data signal whose amount of
10 delay is a swept second amount that can range from less than to more than first amount of
delay;

12 a transition detection circuit coupled to the delayed clock signal and to the delayed
logical data signal, and having an output producing a transition signal indicative of a
transition in the delayed logical data signal occurring during a selected length of time
14 subsequent to a transition in the selected direction within the delayed clock signal;

16 a counter coupled to the transition signal and that counts occurrences thereof; and

18 a memory whose content is organized as ~~an eye diagram~~ data structure indexed by
the signed difference in the first and second amounts of delay ~~delays for the variable clock~~
20 ~~signal waveform delay circuit and the variable data signal waveform delay circuit,~~ by the
variable threshold, and that stores in an indexed location the number of counted occurrences
that the data signal occupied the indexed location with an eye diagram.

* * * * *